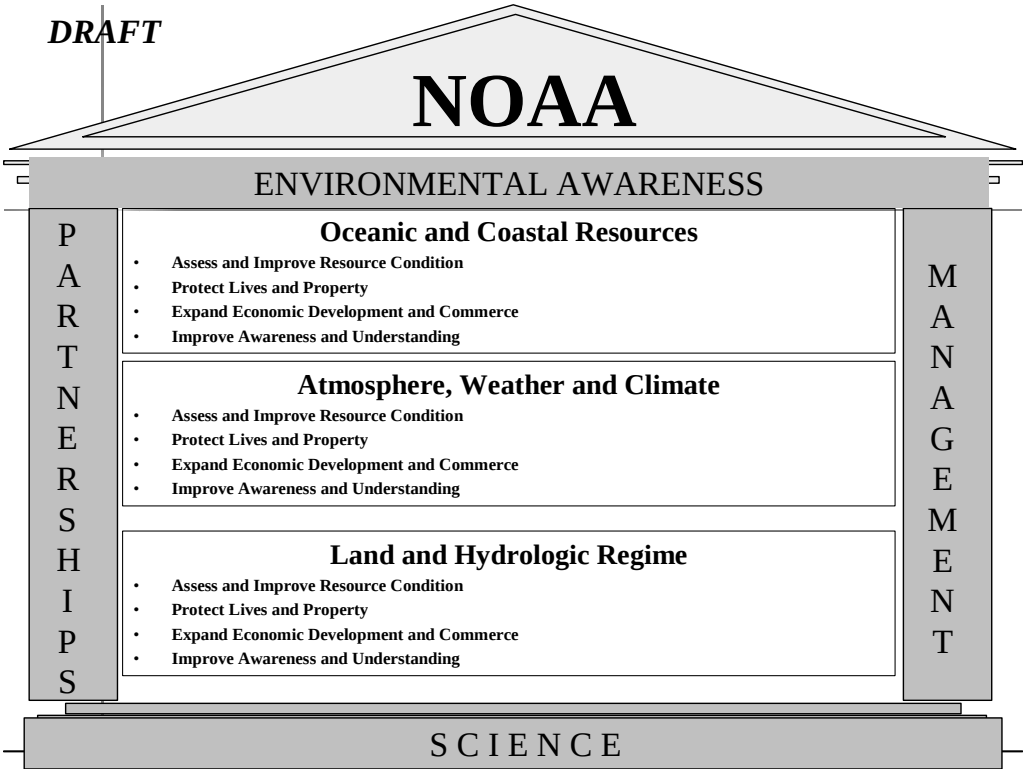
Summary of Boulder Stakeholder Results

In Boulder, Timothy R.E. Keeney, Deputy Assistant Secretary for Oceans and Atmosphere, hosted the workshop for 45 External Stakeholders for NOAA Strategic Plan. The stakeholders reviewed the five major End Outcomes and the framework produced from the Washington D.C. workshop. The reviewed theme areas were **Life and Property; National Defense and Homeland Security; Commerce and Economic Development; Healthy Oceans, Coasts and Coastal Communities; and Sustainable Species.** The Stakeholders developed an alternative framework containing three themes: **Ocean and Coastal Resources; Atmosphere, Weather and Climate; and Land and Hydrologic Regime,** each containing the same set of four outcomes. The charts below and the notes following reflect the Day 1 Workshop attendee's comments on the Strategic Planning documents produced thus far.



Assess and Improve Resource Condition

Inputs	Outputs	← Intermediate Outcomes	← End Outcomes
$ FTE	Strategy 1	**Oceans and Coasts** *Measures:* -% of waters meeting federal standards for health and environmental quality (CWA, CZMA, etc.) 16, 19 -Annual Inventory of: Beachline (acres), Coastline (miles), Wetlands (acres), Estuaries (acres), Fish Runs (miles) 0, 2 -# of Acres/River Miles Restored 3, 5 -# of Successful Partnerships 1, 4 -~~Coastal Inhabitants Environmental Awareness Index 1, 5~~ -Reduction in Resources Committed in Maintenance of Restoration Initiatives 0, 0 -Ratio of Coral Bleaching to total area of Coral Reef 3, 0 -# and health of Keystone Species (e.g. Oysters) 14, 18 -# of candidate, threatened, endangered or trust species in stable or upward trend 9, 10 -# pounds of catch annually 1, 0 -# of critical habitat acres restored 4, 2 -% of Fisheries meeting Maximum Sustainable Yield (or Optimal Yield) 6, 5 -% of Stocks assessed for sustainability 1, 0 -% of fish management plans accepted 3, 0 -% of Coastal Communities with Non-Point Pollution Control Program 4, 5 -% of Coastal Miles Accessible to Public 1, 0 -# of Debris in a mile 0, 0 -# of Beach Postings 9, 6 -% of Coastal Community Economies within National Economic Growth Averages 0, 0 -Measure of vulnerability to storm surge and toxins, %of communities assessed accurately for high risk (NPDES process) NA, 6 -Reduction in the number of edible fish warnings NA, 8 -# of regions in distress NA, 14 **Principle of measurement – Look at hotspots. National averages may not be useful, focus on regional level issues **Atmosphere and Climate** -Air Quality Indicators -Trace Gas Quantity (CO2, Ozone, Sulfer Dioxide) -# of Population living in poor air quality areas -Accuracy of El Nino conditions -Sea Surface Temperature Indicators -Standard Meteorological Indicators (Precipitation, Temperature, Pressure, Space environment) **Land and Hydrologic Regime** -Availability of Water -Quality of Water -% of Areas meeting federal standards (CZMA) -# of Partnerships with land and water management agencies (value and use of information)
$ FTE	Strategy 2		
$ FTE	Strategy 3		
$ FTE	Strategy 4		
$ FTE			
$ FTE			
$ FTE			
$ FTE			

Protect Lives and Property

Inputs	Outputs	← Intermediate Outcomes	← End Outcomes
$ FTE	Strategy 1	**Oceans and Coasts** -% Up-to-date Hazard Maps 4, 3 -% of harbor and ports where hazard maps that are up-to-date 2, 0 -% of Charts Updated 7, 2 -# of Navigationally Related Accidents due to Inaccurate Charts, Water Levels, etc. 13, 6 -# of Partnerships with Safe Boating Organizations 1, 1 -Ratio of Loss of Life to Occurrence of: Tsunami, storm surge other extreme weather events 17, 13 -Loss of Property do to Coastal Erosion; # of structures (May want to quantify value) n/a, 13 **Atmospheres and Climate** -Ratio of Loss of Life to Occurrence of: Tornados, Flash Floods, Hurricane, Lightning, Flooding, Oil Spills, Tsunami, other extreme weather events 17, 14 -% accuracy and # lead time of predictions of adverse weather, space weather and climate conditions 23, 18 -$ value losses Adverse Space Weather, Certain other Events Ratio to occurrence 4, 4 -False Alarm rate by Type of Warning 5, 5 -# Satisfaction by Emergency and Resource Managers in Forecasts 1, 4 -% satisfaction by national security and homeland security managers in NOAA weather and climate Information 5, 2 -Reduce # of Terrorist False Alarms due to Natural Events 5, 0 -% Penetration/Awareness based on Issuance of Warnings 2, 13 -# of satellites impacted by adverse space weather n/a, 4 -# of power grid failures related to space weather n/a, 3 **Land and Hydrologic Regime** -Ratio of lives lost to occurrence of floods and volcanic impacts (plume) n/a, 6 -# of structures lost to floods n/a, 0 -% accuracy and lead time in predictions of floods, droughts and volcanic plumes n/a, 16 -Satisfaction of Emergency and Resource Managers in data and forecasts n/a, 3 -Reduce the # of agricultural acres taken out of production due to drought or flooding (M and I, environmental) n/a, 0 -Reduce the # of false alarms n/a, 1 (ran out of votes!)
$ FTE	Strategy 2		
$ FTE	Strategy 3		
$ FTE	Strategy 4		
$ FTE			
$ FTE			
$ FTE			
$ FTE			

Expand Commerce and Enhance Development

Inputs	Outputs	← Intermediate Outcomes	← End Outcomes
$ FTE	Strategy 1	**Oceans and Coasts**	
$ FTE	Strategy 2	-Ratio value of Natural Resources to the Value of the Coastal Economies that rely on them 3, 0 -Net Value of resources (renewable and non-renewable) taken out of oceans 0,1 -% of Adequately Charted Waters 4, 2 -# of new Discoveries of Ocean Resources 8, 2 -Social and Economic Value of Ocean Resources 12, 5	
	Strategy 3	-# Satisfaction with Information (Needs, Quality Data, Adequate Spatial Density, Reduce Uncertainty, Did Decision have Positive Impact, Accessibility) {not just commercial, but Governmental and Non-Governmental entities} 16, 13 -# of customers who actually use NOAA information n/a, 14	
$ FTE	Strategy 4	**Atmosphere and Climate**	
$ FTE		-Weather/Space Weather/Climate Commercial Efficiencies Index (developmental, positive or negative): % improvement in sample cost indicators across weather/climate sensitive industries (aviation, telecom, energy, maritime, agriculture etc.) 13, 14 -% of Prediction Accuracy 9, 19 -# Satisfaction with Information (Needs, Quality Data, Adequate Spatial Density, Reduce Uncertainty, Did Decision have Positive Impact, Accessibility) {not just commercial, but Governmental and Non-Governmental entities} 16, 13 -# of customers who actually use NOAA information n/a, 14 -# of commercial uses of NOAA technologies n/a, 6	
$ FTE		**Land and Hydrologic Regime**	
$ FTE		-# Satisfaction with Information (Needs, Quality Data, Adequate Spatial Density, Reduce Uncertainty, Did Decision have Positive Impact, Accessibility) {not just commercial, but Governmental and Non-Governmental entities} 16, 13 -# of customers who actually use NOAA information n/a, 14	

Improve Awareness and Knowledge

Inputs	Outputs	← Intermediate Outcomes	← End Outcomes
$ FTE	Strategy 1	**Oceans and Coasts**	
$ FTE	Strategy 2	-# score on public awareness survey (demographically charted) 4, 5 -# of public participation and comment on issues and regulations 4, 1 -# of media citations 5, 0 -# of partnerships leading to research and awareness; both with Government Agencies and Private Industry/NGO/Universities 13, 17	
	Strategy 3	-# of significant discoveries made 3, 8 -# ratio of data entered to data used 9, 4 -# data expanse 3, 4	
$ FTE	Strategy 4	-# of science citations indexed 2, 0 -# of web sites hits and inquiries 2, 3 -# of publications and patents 6, 12 -# of user satisfaction (Need, Reduced Uncertainty, Decision had Positive Impact) 6, 13 -#of graduates in various fields 7, 0 -# of current or former NOAA scientists in National Academy of Sciences 1, 0 -# of Research Models Transitioned into Operational Models 19, 16 -Amount of Cycle time it takes to Transfer from Research Model to Applied Models **{Universal edit: "model" may need tobe removed}** 10, 6 -Amount of Cycle time it takes to Transfer from Applied to Operational 11, 8 -% of public who understand NOAA and it's mission/function n/a,7 -Currency of data n/a, 4 -% of budget that is applied to R&D n/a, 2 -Quality of data n/a, 6	
$ FTE		**Atmosphere and Climates** See Above Measures	
$ FTE		**Land and Hydrologic Regime** See Above Measures	

Outcome #1 Protect Lives and Property

Strategic Goals:

1. Improve Prediction
   - Reducing false alarms.
   - Measure by credibility of general public and our users.

2. Improve Navigation and mapping resources
   - Percent reduction in backlog of critical area maps

3. Enhance accessibility and reliable communication of information
   - Credibility of information
   - Cycle time to distribute information

4. Improve observations
   - Reduce inappropriate downtime of satellites
   - Integration with regional and national and international observation systems.

5. Enhance user capability to manage risks with information

6. Reducing the risk posed by erosion

Other Background Information

1) Monitoring and Baseline maps, charting, accurate positioning (shipping) for reference points. Real time information (general use/warnings)
2) Partnerships with local EMS. Public/Private coordinator (NWS agriculture and weather related). Interagency coordination for all of them.
3) Collection, dissemination, understanding information—integrity. Public warnings. NOAA agency recognition/ service marketing/ PR delivery.
4) NOAA recruitment/HR succession planning
5) Conflicting Environmental, Commercial, Balancing and Reconciling
6) Protect harbors
7) Good nautical charts
8) Improve predictions of catastrophic events
9) Reduce false alarms
10) Information for assessing risks of coastal mgmt/population
11) Develop coastal and inland monitoring system including baseline
12) Provide accurate positioning reference system, navigation, mapping, surveying, charting, monitoring, aviation, and emergency evacuation.
13) Improve Tsunami warnings
14) Spill trajectory (modeling)
15) Communication (increase with public)

16) Stronger mechanism for assisting local and state government decision makers (coastal and inland)
17) Update hydrologic surveys. (shipping and dredging)
18) Tide information (port systems for navigation)
19) Make more comprehensive charting (electronic and real time)
20) Real time information (radar)
21) Partnership with state and local port authorities including governments, decision makers
22) Satellite/radar advanced imaging
23) National shoreline study collaboration with USACOE
    Update flood insurance rate maps collaboratively with FEMA
24) Better policy with NWS and private sector—coordination and collaboration
25) Better means to collect/disseminate/distribute information (where do I go to find what I need).
26) Integrity of information and source
27) Public recognition to increase credibility, confidence in information
28) Public warning systems improvements—Internet/Satellite/radio/cell phone
29) GIS/GPS for regional specific information (layers of information fitting data)
30) Expansion of NOAA forecast system labs to predict weather better water vapor sensing for weather predictions
31) HR succession plan
32) Conflicting environmental/commerce responsibilities (Education, economic shift tourism and fishing balance)
33) Environmental restoration balance with commerce
34) Improve quality, integrity of air pollution monitoring

Outcome #2
Support National Defense and Homeland Security

Strategic Goals:

1. Improve Prediction
    a. Improve air and water dispersion modeling vulnerability assessment
    b. Improve realtime weather, space-weather data information to improve positioning, navigation, and communication

2. Improve Navigation and mapping resources
    a. Enhance port security: harbors/sea floor mapping

3. Enhance accessibility and reliable communication of information
    a. DOD/homeland security user satisfaction with products/services

4. Improve observations

5. Enhance user capability to manage risks with information

Other Background Information

1) Support and furnish information to Homeland Security Departments—Interagency Coordination—Better Communications

Is Homeland Security a NOAA area of concern or theme? Comment

2) Infrastructure and support EM
3) Research and environmental affects on weapons delivery—effectiveness.
4) Enhance observation platforms capabilities and sensor usage
5) NOAA brand recognition (development)
6) Enhance delivery of services –PR/marketing/ etc. (L & P)
7) Detect waterborne contaminates (sensing, mapping) locating, charting, instrumentation, data logger, communication—dissemination
8) Dual usage of estuarine sensors (expansion)

Overarching

- Monitoring (baseline)
- Maps, charting and accurate positioning and reference points
- Real time information
- Public Warning
- Partnerships with local EMS
- Public/private coordination (agriculture, NW weather related)
- Interagency Coordination
- Collection/dissemination/understanding information = integrity
- Agency recognition/service marketing, PR, delivery
- NOAA recruiting/HR succession planning (contracting, partnership, outsourcing)
- Conflicting environmental and commerce (balancing and reconciling)

Measures:

- Baseline and measurement of products (What do we have?) (Where do we have to be?)
- What do we have?
- Goals and timelines established
- Increasing measurement of surveys (hydrolographic, user and customer satisfaction measurement)
- Heights-increase local capacity to access height information when and where needed (effect of getting ships in/out of port—pilot information. More ships per unit time—in/out of harbor. (GPS-real time to LCM resolution) (planes—in and out of airport). (How many airport have system integration improvements, installed and operations)

1) Partnerships—customer survey—ask?
2) Number of committees
3) Number of partnerships
4) Number of standard tests

5) Number of regulatory reduction
6) Number of contacts and contracts
7) Number of MOU/MOA
8) Reduce CYA
9) Number of uses and awareness of info
10) Number of web hits
11) Number of improvement of user performance measures
12) Reduces Tasks vs. Times
13) Number of partnerships among partners
14) Collection/DIS/understanding
15) Information—Integrity
16) Number of increase users/web hits
17) Reform paper work/ Reduction act/develop a success mechanism
18) Number increase e government
19) Number of test, exercise, or education of warnings (public)—(scenario tendencies) S. Fl. Water mgmt. Ex.
20) Number of Collection hours (platform counts—plane)

Outcome #3
Support Commerce/Economic Development

Strategic Goals:

1. Improve Prediction

- Improve seasonal and long term climate forecast
- user confidence
- Set higher target and goals for weather forecasts to improve predictions (needs assessment by user or industry)
- Space weather, increase forecast accuracy
- User confidence and satisfaction
- Increase reliability of micro-climatic variables.
- Increase abilities to use probabilistic forecasts to inform economic decision making
- Oceanographic observations and forecasting

2. Improve Navigation and mapping resources
    - Real-time water level measurements.
    - Improve mapping in EEZ
    - Improve GPS measurements
    - Enhanced Geospatial information through technology
    - Use of autonomous vehicles
    - Customer satisfaction with mapping
    - Multiple uses of data collected and improved access to data collected
3. Enhance accessibility and reliable communication of information
    - Easy access to information
    - Maintaining a high quality data set for weather and climate data
    - Education and outreach
    - Continue marginal cost approach

- Integrate data sets
- Ease of use of data, formats and integration
- Development of new data information products (don't impact public private partnerships)

4. Improve, Maintain critical observations
   - Needs assessment and associated user satisfaction with the quality of the data
   - Enhancing the national data buoy center and increase information gathered
   - Encourage and support the use of observation data by value added providers
5. Enhance user capability to manage risks and improve decision making with information provided by NOAA
   - Demonstration on how environmental and climate information affects market and global economy
   - Public valuation of information (need to develop metrics for this)
   - Proactive outreach
   - Identifying areas where information should be used and is currently not.

6. Manage Sustainable Fisheries:
   - Protect marine biodiversity (Better description of interaction of the species)
   - Improved habitat (mapping)
   - Cooperative research
   - Artificial reefs, restoration (stock enhancement),
   - Developing sustainable aquaculture
   - Resolve conflicts over different data sets.
   - Improved observation on catches and location of catches. Population and harvest levels and locations.
   - New approaches to management ie. Community, MPA's, ecosystem.
   - More transparency in assessment of conflicts.
   - Determine appropriate capacity levels for fisheries.
   - Institute sources of rent for fisheries to create funding stream for resource and management.
   - Resolving conflicting federal-state jurisdiction.
   - Improved assessments using variety of techniques.

7. Facilitate exploration and development of Marine Resources
   - Streamline Regulatory Process
   - Improve response to lawsuits
   - NOAA could improve contracting capabilities across the board
   - Expanding exploration opportunities and initiatives (pharmaceutical area, etc. etc.)

8. Enhance enjoyment and recreation of marine resources
   - Determine the economic value of coastal tourism
   - Water quality
   - Erosion
   - Overdevelopment, Privatization or single coastal use, ensure public coastal access

- Promote sustainable fisheries for recreational use
- Public education for stewardship
- Ensure concerns heard in the management process for recreation stakeholders
- Overall resource protection. Proper stewardship

Other Background Information

Fisheries:

1. Improve consumer access and socioeconomic value of fresh U.S. Fisheries Resources.
2. Fair and equitable fisheries regulatory body that is held accountable for actions (consistent F.M.C. membership)
3. National plan to prevent invasive species from destroying U.S. fisheries resources
4. Improve collaboration, open transparent scientific process
5. Improve quantity, quality and timeliness of regulatory process

Performance Measures:

1) Reduce the introduction of invasive species to zero.
2) Prioritize invasive species by cost of impacts.
3) Process: Use an independent body to review, track, and measure performance and ensure accountability.

Energy:

1. Improve NOAA's collaboration with government agencies to ensure access to energy resources on the Federal O.C.S.
2. Reform consistency regulations of CZMA on dispute resolution in shortest practical time at lowest level of party interaction (certainty and time lines)

Performance Measures:

1) Number of lease sales
2) Number of leases awarded
3) Number of wells drilled
4) Volume of oil, gas, and minerals produced.
5) Reduction in number of appeals to NOAA
6) Reduction in timeframes for Fed Consistency Review
7) Reduction in law suits filed
8) Reduction in cost by applicants from streamlined processes.
9) Reduction in federal time and money spent on application process costs

Maritime Commerce

1. Increase the economic value of U.S. Maritime and great lakes commerce.
2. Ensure accurate and timely charts and hydrologic surveys
3. Add more tidal gauges and NOAA buoys
4. Integrate satellite information e.g. water temperature, position information

Performance Measures:

1) Increase number of users of tidal gauges
2) Decrease groundings, etc.
3) Measure cost saved?
4) Measure costs of damage?
5) Increase time and money saved by users of tidal information, charts, etc.
6) Improve access to Satellite information
7) Number of users or user groups
8) Number of site hits
9) Number of emails replies
10) Number of phone inquiries

- Vessel monitoring systems (VMS)
  Vessel traffic control system? (Too expensive for individual fisherman)
- NOAA contract research to make technology more accessible—
- PM: Technology becomes cheaper
- PM: More systems purchased/installed

Commerce/Social/Economic/Sustainable Development:

1) Consumers: Are not protected
2) Consumer interests are not represented.
3) Equitable access to resources (fish)
4) Resource allocation issue
5) Foreign Fishing
6) No control over imported fish quality
7) Imported fish pushing out domestic
8) Recreational fishing expanding
9) Commercial fishing shrinking --Implications for heartland consumer
10) Recreational Fish QA/QC—Found to be high quality
11) Global environmental impacts from foreign fishing
12) Economic impacts to U.S. Fisheries due to foreign "dumping"
13) Fishing—Complicated Regulations
14) Inequitable fines. Commercial vs. recreational.

Energy Security

1) Make it less political
2) CZMA consistency appeal process too slow.
3) NOAA CZMA Cons. Regs need to be more precise/specific/detailed
4) Arbitration—type of process for all parties to come together
5) Consensus from all parties
6) Timely resolution of conflicts
7) Certainty as to process
8) NOAA needs to be clear on regulations req's for dispute resolution.

Improve Management information collection analysis and integration

Measures:

1) Time from collection to integration in management decisions.
2) Is amount of by catch data increasing
3) Is amount of by catch per unit date increasing?
4) Is amount of statistically significant data improving (standard needs to be developed?
5) Is amount of reliable data available increasing (statistically significant?)?
6) Is backlog of data being reduced?

Improve mapping of coastal and ocean habitat to understand use by all species by life stages.

Measures:

1) Number of maps developed for specific species
2) Measure/monitor customer satisfaction

Manage our costal and living marine resources at optimal sustainable levels

Measures:

1) Number of candidate, threatened, endangered or trust
2) Number of fisheries considered fully recovered
3) Number of fisheries considered managed at optimum level

Outcome #4

Healthy Oceans Coasts and Coastal Communities

Note: proposal to extend area of jurisdiction and take role as lead agency in EEZ

Strategic Goals:

1. Improve Prediction
   - Improved social and economic data for coastal communities
   - Monitoring and forecasting models
   - Novel uses of existing data
   - Climate and forecasting
   - Impact of sea level change on coastal communities
   - Better predictions of how land use and decisions on coasts affect marine resources
2. Improve observations
   - Overcome gap in data between 8 meters and shore and estuaries
   - Incursion of freshwater and seawater (watertable)
   - Improve observation about number of fish taken and manner taken
   - Invasive monitoring
   - Seafloor biodiversity monitoring
   - (Increase uses of satellite picturing)-Cost effective activity
3. Enhance user capability through education to improve decision making
   - Regional coordination
   - Enhanced inter-governmental partnerships
   - Strengthen process for ocean use planning process
4. Mitigation of risks to marine resources coasts and communities

- Improved collaboration
- Improved monitoring
-

5. Restoration of Coastal habitats to restore proper ecological function
   - Brownfields cleanup
   - Cost benefit analysis of alternatives and solutions

Other Background Information

1) Procurement, provision, dissemination of knowledge (science, tech. Assist, etc).
2) Healthy Ocean: Balance resource use and protection, by providing information science and technology to enable sustained economic growth and development
3) Enhance and promote partnerships to minimize duplication of efforts and improve quality of science, etc.
4) Restoration of coastal habitats to restore ecological function and economic growth (comprehensive plan) don't stand in way
5) NOAA should be enabler; not implement
6) Understand importance of freshwater
7) Extend NOAA's jurisdiction in the EEZ as lead agency
8) Provide partners, constituents with best science to make best coastal resource management decisions (states make decisions) regarding what constituents do.
9) Science needs to be state of the art and believable
10) Set benchmark with one set of science data
11) NOAA's science needs to be useful but not duplicative
12) Get correct science to correct people
13) Restoration of crucial habitat types—including invasives
14) Expertise
15) Good science
16) Clearing house
17) Financial assistance
18) Stop undesirable invasive species (US after the fact control)
19) Balance resource use and protection
20) Provide information and technology
21) Enable sustained economic growth and development
22) Strong spill response group needed-available SSC Outreach on availability of SSC (and HE needs help)
23) Reactive nitrogen inventory—processes, emissions, deposition, transfer
24) NOAA should provide expertise in coastal land use planning (technical assistance, tech transfer, partnership with other Feds)
25) NPS pollution—work among Fed. Agencies Better (-talk, use same data)
26) Clearing house of one agency talking lead on coastal land use management
27) Extend monitoring of "dead" zone –better baseline data
28) Partnerships with states, universities, all interested parties, private industry, and environmental groups. Need regional flexibility and two-way information flow

29) Integrate existing data collection from others—direction collection to clearinghouse specifications.
30) Promote ocean stewardships environmental education
31) Ensure that adequate fresh water come to Gulf of Mexico
32) Historical water flows to maintain habitat
33) Avoid word with ambiguous meanings—glossary—provide NOAA mandates
34) NOAA should not stand in the way of protection, restoration, environment of freshwater flows
35) Facilitate agencies have conflicting goals
36) See Big picture—conflicting mandates with other Federal Agencies (e.g. can't restore fresh water marsh because now has managed marine SP (EFH)
37) Transfer of scientific information to partners
38) Need for comprehensive Ocean Mgmt.—NOAA should take the lead
39) Extension and engagement
40) NOAA should educate at grade school level—value of ocean and coastal habitats (Sea Grant)
41) Data needs to be useful and applicable
42) Broad based ocean and atmospheric exploration
43) Definitive timeline for completion of CZM process—consistently review (appeal)
44) Streamline permitting/constructing –proactive
45) NMFS vs. coastal development

Performance Measures:

Balance protective use with sustainable economic growth

1) Number of acres protected/permitted/mitigated
2) Number of permits applied for/# permits approved/denied withdrawn --ways NOAA's role—how many because of NOAA's demands.
3) Measure of fisheries recovery to harvestable—populations and catch increase
4) Number of communities engaging in ecotourism

Restoration

1) Number of acres habitat types restored across geographic areas.
2) Measurement of restored function
3) Historic habitat types
4) How close to no net loss by habitat types (permitted/restored/mitigation)

Partnerships

1) Number of interagency agreements
2) Number of parties and number of years
3) Number of people took leave from NOAA to work elsewhere –IPA
4) How much NOAA $ Pooled with other money—leverage resources/matching
5) How much money out through grants program
6) How many partnerships projects NOAA participated in
7) Number of people can provide (fund) (e.g. Fellowships)
8) Changes of processing time on interagency permit actions/consultations

Freshwater

1) Number of acres wetlands and riparian lands protected/restored by watershed
2) Agricultural and forestry BMP implemented
3) Acres freshwater converted to other use
4) Freshwater withdrawals by watershed/aquifer
5) Number storm water mgt plans/NPS plan elements implemented

NOAA enabler

1) Number of law suits against NOAA
2) Time for permit/CZM appeal decision
3) Number vetoes on permit decisions (EFH, ESA, MMPA, etc.)

Outcome #5
Sustainable Species and Fisheries

Strategic Goals:

1. Manage Sustainable Fisheries: (Also defined under Economy/Commerce Goal)
   - Protect marine biodiversity (Better description of interaction of the species)
   - Improved habitat (mapping)
   - Cooperative research
   - Artificial reefs, restoration (stock enhancement),
   - Developing sustainable aquaculture
   - Resolve conflicts over different data sets.
   - Improved observation on catches and location of catches. Population and harvest levels and locations.
   - New approaches to management ie. Community, MPA's, ecosystem.
   - More transparency in assessment of conflicts.
   - Determine appropriate capacity levels for fisheries.
   - Institute sources of rent for fisheries to create funding stream for resource and management.
   - Resolving conflicting federal-state jurisdiction.
   - Improved assessments using variety of techniques.

Still need strategies for marine mammals

Other Background Information

1) **Improve management information collection analysis and integration – 4**
2) **Improve mapping of ocean habitat to understand use by all species by life stages – 3**
3) **Management our coastal and living marine at optimal sustainable resource levels – 3**
4) Stabilize fisheries management use using rights based management for fisheries for which it is appropriate. – 0
5) Update hydrologic surveys/charts – 1

6) Develop sustainable aquaculture for consumption and stock enhancement – 2
7) Structure management around ecosystems to greater extent
8) Improved decision processes for fisheries management – 1
9) Define recovery goals for endangered species – 1
10) Increase awareness of and expand measures to prevent damage from invasive species –1
11) Expand inter-governmental university industry and NGO partnerships. – 2
12) Improve accuracy, precision, timeliness of stock status information – 2
13) Improve NOAA's ability to increase compliance – 0
14) Increase social science capability – 0
15) Improve management of species with very limited information –2
16) Encourage non-consumptive utilization of living marine resources – 1
17) More/improved public relations- 1
18) Improve economic evaluation of habitat for fisheries (no number given)

Measures:

1. Time from collection to integration in Management
2. Decrease levels in the amount of bycatch
3. Stakeholder satisfaction levels
4. Data Quality measures
5. Reduction in the amount of backlog data reduced
6. Number of maps developed for specific species
7. Number of coastal and living marine resources managed at optimal sustainable levels
8. Number of candidate, threatened, endangered or trust species in stable or upward trend
9. Number of fisheries recovered
10. Number of fisheries considered managed at optimum levels.

NOAA Staff
(Additional ideas and comments)

Partnerships

1) Energize our partnerships with federal, state, and local government agencies; help them succeed in their mission when it supports a shared outcome; e.g. Coast Guard, FAA, USGS, State, and Local EM's, CZM's, Fish and Wildlife, BMR

Measures:

- Customer Surveys
- Identify and measure shared outcomes with each partner; intensive reviews and deliberate surveys after major events.

Scientific Excellence

1. NOAA's scientific agenda should be set in response to customer/partner needs (regional and national level)
2. Integration across disciplines
3. Partnership with academia and research communities

Measures:

1. Measure the rate of scientific/technical infusion into operations
2. Have dialogue with partners to establish measures and targets

3. Continue current objective measures; e.g. verification
4. Review by external groups e.g. SAB

Outreach

1) Integrate all NOAA's information resources and serve them up in customer friendly ways
2) Integrate NOAA's observational resources, and serve them up in a NOAA friendly way.
3) Spend the time and resources to get the metadata right

Measures:

1. Consistent NOAA method to invite customer input and feedback.
2. Develop a method of counting number of data islands
3. Measure outreach investment of NOAA

Public/Private Relationships

1) Transparency
2) Dialogue
3) Common NOAA Strategy?

Measures:

1. Customer Survey methods
2. Measure/Count formal relationships
3. Determine common outcomes and measure appropriately

People

1) Maintain high quality, motivated workforce through innovative workplace practices (e.g. compressed work schedule, telecommuting, job sharing, IT tools for collaboration)
2) Recognize interdisciplinary career paths
3) Communication, particularly best practices and eliminating barriers.

Measures:

1. SFA
2. Recruitment
3. Retention Data
4. Exit Surveys
5. Monitor of new applicants
6. Expenditures for training/career development

Day 2 Morning – External Stakeholders

After the opening by Tim Keeney, the three new conceptual themes were grouped in to breakout tables and the external stakeholders were able to choose a discussion table. The discussion centered on challenges, strategies and potential performance measures. Each group briefed their discussion points to the large group. The information below captures important themes and ideas discussed within each group.

Stakeholder Groups

Atmosphere, Weather and Climate – Group 1

Challenges:

1. Dissemination. Vol/Competition for resources.
2. Forecasting.
   - Long range-Climate times scales
   - Rising expectations for all time scales – no end in site. We need to better describe the uncertainties.
3. Who is NOAA? – we need attribution to NOAA for products.
4. Expectation that NOAA will answer climate change questions as an honest broker
5. Identify short comings in current OBS and balance resources to obtain improvements (e.g. ship/buoyreports)
6. Better Ionosphere modeling specifications
7. More Leadership and research effort in space weather
8. Optimum mix of OBS technology
9. Integration of new technology
10. Define operational rulesd NOAA vs. other agencies
11. Products and services needed by users
12. Data discontinuity from present to past.

Strategies:

1. NOAA needs authorization for Education activities
2. Use earth systems science to integrate educational focus.
3. More media outreach
4. Use forecasting failures to educate public about forecasting needs or challenges
5. Reach out to science teacher organizations.
6. Work with DOE to measure earth and science knowledge.
7. Work better with Entertainment individuals

Measures:

1. Classroom visits and NOAA visits
2. NOAA web hits by .edu addresses and K-12
3. Scieence announcements/media exposure
4. NOAA programs on PBS

Supporting Commerce and Economy:

1. Measure benefits of NOAA forecasts on aviation industry – weather delays, fuel use, restricted volume, space weather diversions.
2. Hydro-impact on Agriculture, water, etc.
3. Infrastructure support
   - Economic Impact- partner with other orgs.
   - Skill score, lead-time, Number of false positives.

Atmosphere, Weather and Climate – Group 2

The group identified Several Strategic Themes of importance.

1. Partnerships
2. Communication
3. Focus on accuracy and lead time of forecasts and warnings
4. Provide for a viable national and global weather/space weather/climate observation and prediction capability

Challenges:
Partnerships.
We need improved partnerships in the following areas:

1. Public/private partnerships across the board
2. University/JT Institutes – who are the points of contact?
3. Decision makers for emergency management customers (both internal and external)
4. We need to clarify role in space climate/weather with other groups.

We need a coordinator at NOAA for partnerships in:

1. Homeland Security
2. Communication (NWR/EAS)
3. Space weather
4. Drought/long range weather climate
5. Research to operations issues (tech transfers)
6. Customer feedback and input

Strategies:

1. Increase partnerships with universities, agencies, NGO's to accomplish NOAA mission
2. Revisit mission statement
3. Improve coordination for dissemination, data collection, two-way communication.
4. Improve accuracy and lead time for warnings
5. Ensure NOAA has adequate resources to complete its mission in both research and operations.
6. Provide for a viable national and global weather, space weather, climate prediction capability
7. Ensure there are adequate observational resources to support the full spectrum of public and private users
8. Continual and ongoing technological improvement
9. Strengthen NOAA's internal (vertical and horizontal) communication
10. Ensure strategic plan is a "living document" with a separate associated implementation plan.

Performance Measures:

1. Number of effective partnerships (government agencies, NGO's, private industry, academia.
2. Customer satisfaction surveys
3. survey customer needs on regular basis for warning and forecast statistics

4. Work with other countries/users to identify gaps in existing observation networks (temporal and spacial.)

Land & Hydorlogic Regime and Oceanic and Coastal Resources – Group 3

Note: These two themes were talked about together by the same group in Boulder. This group listed a number of strategies and outcomes.

1. Education
2. Improve public and scientific understanding
3. Wildland fire responsibilities – Identify extent and location of fireweather forecasts, spot forecasts for subscribed burns.
4. U.S.G.S and U.S.F.S should be engaged as partners for wildland fire.
5. Identify impacts on species (anadromous species)
6. Partnerships within NOAA that lead to partnerships with outside agencies should be encouraged.
7. Critical paths and avoid struggles of interpretation
8. NOAA should take leadership role in formatting of data. E.g. GIS
9. Regional models for distribution of information as national policy
10. Accessible technology for access to information (the group suggests following the Volkswagen model)
11. Distribution of NPOES data policy?
12. We are good in the acquisition of data but poor in the distribution. These needs to be improved. NOAA coast watch (great lakes) is a good example of good data dissemination. Also, USGS is a good example as well using the internet.
13. Would like to see NOAA taking national leadership role in synthesizing information and dissemination.
14. Develop personal relationships at the local level (National Weather service)
15. Improve local level investment to increase their vestment in the process
16. Effective dissemination, priority strategy.
17. Stream flow data- Have NOAA be the standard (the go-to place)
18. Identify NOAA role in building local capacity for data use and forecasting
19. Continue the local collection of data but have NOAA disseminate nationally
20. NOAA should provide leadership and partnerships for deliveries in local level
21. Real time information
22. NOAA data centers better integration of dissemination of data
23. Make data more user-friendly to reduce inundation of data. NOAA is challenged to tailor the data according to user.
24. Spectrum of users, NOAA needs to:
    - Target audiences
    - Identify needs
    - Decide who will compile and synthesize
    - Format
25. We need to leverage existing states partnerships (NSF children's program to increase education)
26. Co-development and knowledge of information.

27. Need a long-term co-development and commitment to knowledge and use of information
28. Support for cooperative agreement
    - NOAA as a better business partner
    - System needs to ramp-up (better facilitation)
    - Legal and financial fix.
29. Change culture – more personal contact by field people with outsiders
30. Identify and know the customers
31. Tailor the organization to meet needs of customers.
32. Does NOAA have a mandate regarding drought issues?
    - Get local level to push issues
    - Improve vision across regional issues (drought plans)
    - Assist with plans
    - Ask people what decisions they make and how NOAA can help in getting them to make decisions.
    - FEMA and USDA have constituent networks which NOAA can partner with.
    - Each agency should act as backup for cross-agency activities
33. Is NOAA place based?
    - NMFS, NWS – yes
    - NESDIS, NOS – no
34. NOAA needs to educate the public regarding changes to the environment and the need for change management
35. We need understanding of changes
36. We need adaptive cultural changes
37. FEME under-writing policies to build in hurricane, flooding areas.
38. Hazard field-role of local government in mitigating foreseeable hazards
39. NOAA's role in assessing this.
40. NOAA should provide real-time elevation reading – coast
41. NOAA should have a "change agency" which includes information on change and NOAA as agent of change

KEY POINTS for NOAA identified by the Group.

1. Empowering and building partnerships
2. Empower NOAA staff
3. Change on how NOAA does business.

SUMMARY of Work Group 3 (Day 2 – Boulder) on Coasts and Ocean, Lands and Hydrology

Our subgroup didn't follow the framework. Rather, we started with topics (e.g., wildfires), moved into strategies, and then to recommendations and identification of 3 key points.

Who is NOAA? We believe NOAA is the lynchpin in so many areas, that they can really serve as the agency of change—both in documenting change in ocean and atmospheres, and in instigating change in others.

We identified 3 key topics:

1. Empower and Build Partners:
- Identify target audience
- Improve public and scientific understanding
- Take leadership role in data gathering, synthesizing, and interpreting
- Effectively disseminate information; prioritize the strategy for products and services by asking: Who are the users (i.e., target audience)? What data do they need or what decisions do they make? Who will compile and synthesize information? What format should be used to synthesize data?
- Use local networks, build local capacity, and leverage local contacts

2. Empower NOAA Staff
- Acknowledge that NOAA staff crosscut between agencies (e.g., natural hazard management).
- Empower NOAA staff to accomplish everything listed in #1, above, and empower them in a leadership way with other agencies.

3. Organizational Change
- Change the way NOAA does business
- Be a better business partner by asking "Who are the customers"? "Who do we outreach to?"
- Change how the population perceives hazards—adaptive cultural change (e.g., don't do stupid things)
- NOAA should not do all the work; rather, they should be the visionary across regional issues and inspire local, state and private partners to take the lead on implementation and management.

Summary: NOAA should be the agency/agents of change.

Day 2 Afternoon – Internal Stakeholders - The comments below reflect those of NOAA/Commerce employees.

Is there any other way to get input from other international scientific collaboration?

Why can't NOAA employees have dialogue meetings to review indepth?

Publish names of people internal stakeholder groups.

Take a look at some of the strategic plans that feed into the overall plan

Hard to apply when you are expanding the frontier of knowledge (use of metrics)

How do we measure science for things we don't know yet?

It might be hard to identify metric for something like an earth system.

Reduce Uncertainty: This is fine in laboratory experiment but there are things for which we cannot reduce uncertainties. Understanding the uncertainties and communicating them is equally important.

Bullet three is probably more appropriate to federal reserve than to NOAA. Expand Development and Commerce, how do we do that?

Does that mean that NOAA is going to increase its resources by charging?

This is a fisheries area.

It could be provide support for Economic Development and Increase Commerce.

One problem confounding weather at NOAA is the private weather sector. We are being told to hold back because there is a strong minority that claims certain products/services are for the private sector. Were being told to hold back. None of them were at this meeting.

Improve Awareness and Knowledge. We need a do over. I do research and I educate. Research and discovery ought to be functional things we do that we can assess. Develop education and literacy.

Are the recommendations in PRT review going to be followed through as it pertains to education and outreach?
Improve awareness and understanding needs to be dovetailed into the PRT recommendations.

When there is a budget allocation that comes from this list, one of the issues is that some of this money goes into these areas. What about putting money into transfer technology into operations. It needs a separate line item in the budget.

There is no process to transfer research into operations. We need to apply resources to accomplish this.

Some at NOAA is that it has become a hardware agency, not a science agency. Over the year, pay increases and taxes from the hill and at NOAA have eroded operational abilities at the laboratories.
Overriding issue is (lack of) base funding from NOAA for research.

The Admiral sent out a questionnaire asking how funding should be spent, didn't send it to us, and he decided it should be spent outside of NOAA, less funds inside.(50% of the funding outside of NOAA, that's a lot!)

These people don't have a clue of funding requirements for the laboratories.

The problem with funding the outside research Universities is that there is no obligation to transfer the research into operational requirements.

There is a problem about quality control. Sometimes we have people from outside asking questions for climate issues who mis-educate people. How can we educate or put quality control from the researchers to outreach information.

We collaborate with other organizations, frequently we find ourselves unable to carry our weight in these partnerships because of lack of funds.

We have a number of times from Washington reports about number of employees retiring. How do we plug the holes.

In today's world with all the issues related to science, how are we going to adjust and how are we going to get the dollars to do catch up where necessary.

We need more vocal support externally that we need to think about these HR issues, succession planning. It needs more press.

If you lose 30-45 year old scientists because of funding issues, your making your succession problem worse.

Space environment space weather does not fit into the mission statement or model as it currently stands.

The coming loss of expertise and personnel of baby boomers is a strategic issue. Not just a human capital

Taking into account Nat'l Acad. Of sciences and Nat'l Research Council.

Feel like other agencies have Co-Opted our mission. They are doing it because they have budget and we don't.

Within NOAA, we have ability to synthesis issues within temple. All of it requires studying the whole entity because we know the pieces.

Under protect lives and property, there's observation issues but its uneven.

STRATEGIES:
Provide or procure the observations essential to the NOAA mission."-Under Protect Lives and Property.

We need to filter the information from these meetings.

Worried that time for input from this group will be rushed due to time of year(holidays).

How about making grants available to individual NOAA labs so they can fund themselves to support NOAA mission rather than giving it to Universities with no cut of base.

Improve Resource condition in the atmosphere: NOAA's mission is more to provide information to study those impacts. We should get rid of the statement to "reduce the impacts and threats." It's a regulatory function outside of NOAA mission.

Improving weather and forecast products. It's not covered in strategies. From a strategy standpoint, should research be subservient to operations or should science direct operations.

Add bullet to Improve awareness and Understanding: Promote changes in attitude and behavior to reduce exposure to environmental hazards.

Whole area of observational science that underscores what we do at NOAA. It's so fundamental, how do we make it stand out in this process.

Issues come up, if were locked into a five year plan we lose our ability to be leaders of emerging issues.